

Art Stephenson Is New Marshall Center Director

Art Stephenson, president of Oceaneering Advanced Technologies, Houston, Texas, was named last week to become the next director of the Marshall Center.

NASA Administrator Dan Goldin announced the appointment Friday during a visit by Goldin and Stephenson to Marshall.

Goldin introduced Stephenson to a near-capacity audience of employees in Morris Auditorium, as well as others watching on Centerwide television. Also on hand were Angie Colvert, a field representative for U.S. Sen. Jeff Sessions, and Oliver Jones, a field representative for U.S. Rep. Bud Cramer.

Stephenson — who is expected to begin directing day-to-day operations at Marshall within two weeks — has more than 30 years experience as a manager in spacecraft and high technology systems.

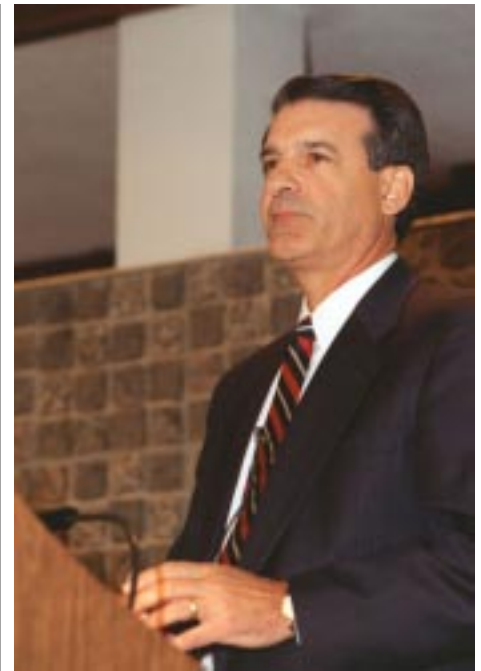
"Art Stephenson is a bright, aggressive person who will fight for issues critical to

NASA, and who will make sure this Agency has the best launch and in-space propulsion capabilities and technical tools in the world. He will bring a wealth of experience and a fresh vision to the operation of the Marshall Center, one of NASA's crown jewels," Goldin said.

Goldin said Marshall Deputy Director Carolyn Griner will assist in the transition and thanked her for serving as acting Center director. "Carolyn Griner has done a wonderful job at Marshall. She is deeply admired and respected by the Center staff." Griner received a standing ovation from those gathered in Morris Auditorium.

"With these two accomplished leaders at the helm, I look for great things from Marshall in the future. With Arthur's vision and Carolyn's expertise, they make a dream team for the Center," Goldin said.

Since 1992, Stephenson has been a senior official with Oceaneering International. Prior to that he worked for TRW in
See Stephenson on page 2



NASA photo

Art Stephenson, the new Marshall Center director, speaks to Marshall employees Sept. 11 in Morris Auditorium following his appointment announcement by NASA Administrator Dan Goldin.

Message from the Marshall Center Deputy Director Carolyn Griner

To the Employees of Marshall Space Flight Center:

Thank you so much for your support over the last nine months. I know it has been a difficult time for all of you and I really appreciate the continued dedication you give to the Center every day. I want to personally assure you that the concerns and issues you have raised with me in the Town Meetings and Feedback sessions will be addressed. Thank you also for the warm reception you gave Art Stephenson and his wife on Friday. We will work together as a team to lead Marshall into a bright future.

Sincerely,

Goldin Charts New Frontier in Engineering Design for NASA

by Mike Wright

NASA Administrator Dan Goldin called for a "revolutionary leap in engineering" at NASA and around the world as part of an address to Marshall employees Friday.

Beyond opening the air and space frontiers, NASA is responsible for designing and building the engineering tools required to do that job, the administrator said. Goldin referred to the new approach to engineering as "Intelligent Synthesis Environments."

He began his address in Morris Auditorium by expressing pride in the accomplishments that NASA made in 1998 in projects such as the Marshall-managed super lightweight external tank and others.

But, he added, more challenges are on the horizon for NASA even in an era of decreasing budgets and downsizing. Those challenges include a magnitude of cuts in system costs and a cut in the cycle time of development by a factor of 3 to 5. At the same time, reliability needs to improve by a factor of 10,000, Goldin said.

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Marshall Center Community Service Day Set for Sept. 19

■ *CFC Speaker Series Continues Today and Thursday; Bus Tours to Visit Recipient Agencies Sept. 18, 22 and 24*

The fourth annual Marshall Center Community Service Day, which is part of the Combined Federal Campaign (CFC), will be held from 9 a.m. -1 p.m. Sept. 19.

Projects include assisting Care Assurance System for the Aging and Homebound (CASA), Christmas Charities, Habitat for Humanity, Salvation Army and Hospitality House.

Community Service Day is designed to involve employees at Marshall in experiencing the work of local CFC recipients first-hand, according to this year's coordinator Karen Dugard.

Meanwhile, Marshall's 1998 CFC Speaker Series and bus tours to recipient agencies continue.

Representatives from CFC recipient organizations will give special presentations to employees Sept. 16-17 at Marshall. They will show how the organizations operate and how CFC dollars are spent.

The remaining Speaker Series schedule is:

- **Sept. 16** — Technology Assistance for Special Customers at 2 p.m. in Bldg. 4487, room 219S.
- **Sept. 17** — Hospital Hospitality of Huntsville at 10 a.m. in Bldg. 4203, room 6002.

A question and answer session will follow each 30-minute presentation. For more information, contact Betty Canestari at 544-7178.

Employees from Marshall, including on-site contractors, will be able to tour the Alzheimer's Association North Alabama Chapter, Children's Hospital, Family Services Center Inc., Harris Home for Children, Hope Place Inc., Hospital Hospitality House,

Operation Home in Decatur, Huntsville Rehabilitation Center, Sterrs Day Care in Decatur and Technology Assistance for Special Customers (TASC).

For the convenience of Center employees taking the tours, two busses (A and B) will stop at Bldg. 4610 at 8:15 a.m. with a second stop at Bldg. 4203 (North loop) at 8:30 a.m. On Sept. 22, only one bus will stop at 8:30 a.m., Bldg. 4203 (North loop) for the Decatur tour.

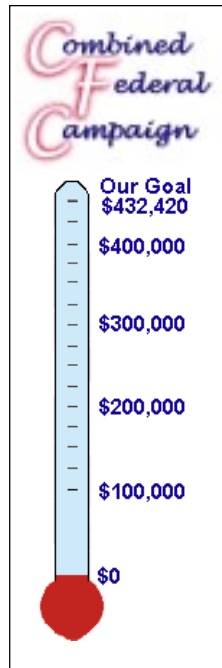
Passengers must arrive at the bus stops 10 minutes before departure. The tours should last no more than two hours.

The tour schedule is:

- **Sept. 18:** Bus A — Family Services Center Inc. and Huntsville Rehabilitation Center
- Bus B — Hospitality House and the Alzheimer's Association
- **Sept. 22:** Decatur tour — One bus to Operation Home and Sterrs Day Care
- **Sept. 24:** Bus A — TASC and Children's Hospital
- Bus B — Harris Home and Hope Place

For more information about the bus tours, e-mail Karen Oliver at karen.oliver@msfc.nasa.gov or call 544-6908.

The CFC kickoff is set for Oct. 5.



Stephenson

Continued from page 1

Redondo Beach, Calif., for 28 years, and last served there as the director of Space Transportation and Servicing Advanced Programs.

At Oceaneering, he has been responsible for the company's work for government agencies such as NASA, the U.S. Navy and the Department of Energy, and led the acquisition of ILC Space Systems Division in 1993.

His role at Oceaneering also included overall responsibility for products and services ranging from astronaut tools and equipment to space flight robots; life support equipment; thermal protection systems for launch vehicles such as the Titan, Atlas and Delta; and special thermally controlled robotic space facilities such as the crystal preparation portion of the X-ray Crystallography Facility for the

University of Alabama.

"I consider him a very dedicated, loyal and people-oriented person," said Steve Harris, who served as the director of marketing for TRW in Huntsville.

"I'm pleased with the announcement," said Jack Lee, a former Marshall Center director. "It underscores the importance of the Center and the key role it plays in NASA's missions, goals and strategic plan. Knowing the community of Huntsville and the people of Marshall, I know they will get behind the new team and keep Marshall on the cutting edge of space technology."

During his 34-year career, Stephenson has worked on a variety of programs related to activities at Marshall, including the Orbital Maneuvering Vehicle in the 1970s and '80s, the Gamma Ray Observatory, automated rendezvous and docking,

and the space welding inspection Extra Vehicular Activity tool.

The Oceaneering services he has directed also include Space Station robotic system engineering support to Boeing, the prime Space Station contractor; and commercial operation of Marshall's underwater training facility.

Stephenson began his career designing digital test equipment for Project Apollo. From that beginning he progressed to receiver and transmitter circuit design, and then to communications systems design. Over time, he moved to management of spacecraft subsystems, then entire spacecraft and ultimately entire launch vehicles.

Stephenson holds a bachelor's degree in electrical engineering from the University of Redlands, Redland, Calif. He is a senior member of the American Institute of Aeronautics and Astronautics.

Researchers Mix Melted Metals in Mid-Air

by Bob Thompson

A new lab tool doesn't exactly defy gravity, but researchers at Marshall think it's the next best thing.

Donated by Space Systems Loral of Palo Alto, Calif., this "no-touch" or containerless processing facility, called the Electrostatic Levitator, was recently given to the Marshall Center's Microgravity Research Program. Using static electricity to levitate molten metals, this new tool melts and takes measurements of metal alloys without touching anything that can contaminate the mixture.

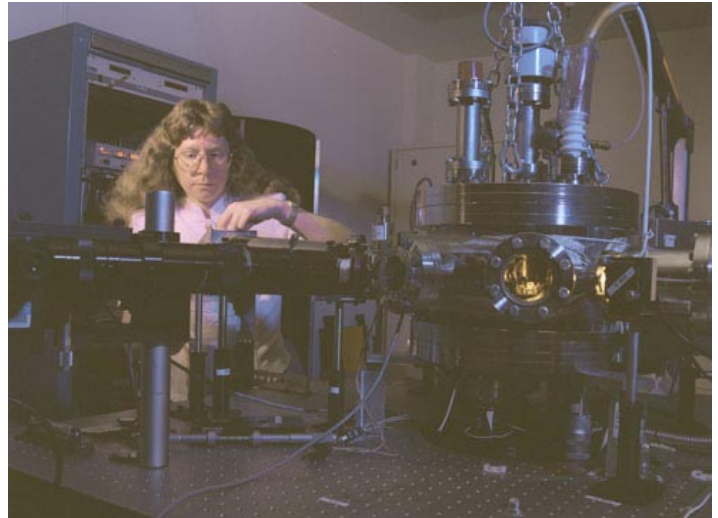
Researchers at the Center are greeting the new tool with open arms because it will help them study how atoms are arranged in molten mixtures and may lead to discoveries of new, stronger, lighter alloys and metallic-electronic crystals with never-before-seen properties.

"With the Electrostatic Levitator we can study a broad range of materials," said project manager Dr. Jan Rogers of Marshall's Space Sciences Laboratory. "By using the electrical forces of opposites attract and like charges repel, we can levitate, process and test a melted sample for several hours."

"They wanted to give the levitator to a national laboratory where it would be available to the scientific community," said Dr. Mike Robinson, Marshall Center materials scientist. "We're the only national laboratory doing containerless processing."

Containerless processing — when a mixture is suspended and manipulated without touching anything — is important to researchers because the purity of the mixture can be spoiled if the melted material touches a container wall.

"The levitator provides important thermophysical property measurements," said Rogers. "By using hands-off measurements, we get a more pure look at the effects different processing



NASA photos by Dennis Olive

Dr. Jan Rogers of Marshall's Space Sciences Laboratory prepares the Electrostatic Levitator for an experiment run. The Electrostatic Levitator, donated to the Center earlier this year by Space Systems Loral, enhances the material science research capabilities of NASA's Microgravity Research Program led by Marshall.

temperatures have on experiment samples. The internal structure of materials — like metals, alloys, oxides and semiconductors — are greatly influenced by heating and cooling rates. We are learning what structures and what capability results from these processing changes."

Having the Electrostatic Levitator at Marshall will complement the materials science research done in space. Although experiment samples in the levitator are processed without touching anything for several hours at a time, they are still under the effects of gravity. And gravity can cause "flows" inside the melted mixtures to sink or settle to the bottom, oftentimes hiding what researchers seek to see. However, researchers think this new levitation tool will help them better understand the behavior and structure of solidifying metal and may provide some insight into which experiments could be successful during a space flight mission.

Materials research in low gravity has taken many steps toward making metal products used in homes, automobiles and aircraft less expensive, safer and more durable. Through this and other NASA research, new "metal-processing recipes" are being used by commercial industries — such as Howmet Industries of Whitehall, Mich., and Ford Motor Company in Cleveland, Ohio — to more precisely design and cast aircraft turbine blades, automobile and light truck engine blocks.

Advances in metals processing has even led to new high-tech golf clubs — made from a metallic glass material.

The demand for new high-strength metals in the aviation, aerospace, power generation and propulsion industries is ever increasing and space research is helping lead the way to these new building materials and consumer products.



Rogers, left, and Larry Savage of the Space Sciences Laboratory at Marshall, foreground, are joined by Dr. Richard Weber, center, and April Hixon of Containerless Research Inc. of Evanston, Ill., in conducting an experiment run of the Electrostatic Levitator using insulating materials. Materials researchers use unique capabilities of the facility to levitate and study the properties of various materials important in manufacturing processes.

Commitment to Safety & Mission Success

It is Marshall's goal to establish our Center as number one in safety. Achieving this goal requires the commitment and involvement of the total workforce.

Marshall Center management has asked that we set aside Wednesday, Sept. 23 to re-emphasize our commitment to safety. Activities at Marshall will highlight safety in three areas — flight, industrial and personal.

Every employee is invited and encouraged to join in these activities. Our future successes depend on your attention to safety. Remember, Marshall Safety First Class!



Amanda Goodson

Director, Safety & Mission Assurance at Marshall

— **Amanda Goodson**



NASA photo

The commitment and involvement of the total workforce at Marshall contributed to the success of mission STS-91. Three Marshall-managed science experiments launched June 2 aboard Space Shuttle Discovery at Kennedy Space Center, Fla. Mated to Discovery is Marshall's first super lightweight external tank, developed to increase Shuttle performance for the International Space Station assembly flights.

Week-long Activities at Marshall Focus on Safety at All Levels

Safety Awareness Week — being celebrated at the Marshall Center Sept. 21-25 — will include a variety of safety-related activities with the focus on employee awareness and accountability for flight safety, industrial safety and personnel safety.

Safety Awareness Week is designed to kickoff activities that will help Marshall reach its goal of establishing the Center as number one in safety within NASA.

Daily "Lunch-n-Learn" sessions are planned for Sept. 21-25, in Morris Auditorium with a variety of safety topics. Guest speakers will offer Marshall employees practical advice on home, driving and boating safety; and building tornado shelters inside the home.

A Workforce Stand Down Safety Day is set for Sept. 23 when Marshall dedicates an entire day to safety. A description of Safety Day events may be found on page 5 or at the following Web site:
<http://SafetyDay.msfc.nasa.gov:9500/>

Safety Awareness Week Lunch-n-Learn Schedule

Safety Awareness Week "Lunch-n-Learn" seminars are scheduled to be held at noon Sept. 21-25 in Bldg. 4200, Morris Auditorium.

Monday, Sept. 21

Guest speaker: **Johnny Ward**, president, National Safety Council, North Alabama Chapter
Subject: **"Home Safety — Poisons, Fire Planning, Windows, Slips and Falls, etc."**

Tuesday, Sept. 22

Guest speaker: **Ed Carter**, past president, National Association of Safe Boating Law Administration
Subject: **"Boating Safety - Jet Skis, New Licensing Requirements, etc."**

Wednesday, Sept. 23

Speaker: **Dennis Fitch**, aviation consultant and former United Airlines pilot
Subject: **"United Flight 232, The Unflyable Plane"**

Thursday, Sept. 24

Speaker: **Dr. Ernst Kiesling**, professor of civil engineering, Texas Tech University
Subject: **"Protecting People from Extreme Winds"**

Friday, Sept. 25

Speaker: **Cpl. Ricky Dale**, Alabama Highway Patrol
Subject: **"Driving Safety - New Laws, child restraints, seat belts, DUI, etc."**

Workforce Stand Down Day Events Set for Sept. 23

Center Deputy Director Carolyn Griner has called for a work stand-down Wednesday, Sept. 23 when Marshall will dedicate the entire day to safety.

With the exception of mandatory services — such as fire, security and cafeterias — all work will be suspended to allow Center personnel to attend Safety Day activities, according to Robert McBrayer, co-chairman for Marshall's Safety Awareness week activities.

The day's events will kickoff at 9 a.m. in Morris Auditorium with a program that will feature keynote speaker Fred Gregory, Office of Safety and Mission Assurance associate administrator at NASA Headquarters, and a former astronaut.

Employees may view local safety vendors' displays promoting and educating employees on health and safety products at the Safety & Health Fair from 10 a.m.-2 p.m. in Bldg. 4200, room G-13. Shuttle

bus service will be available. A bus schedule is listed below. Industrial and

personal safety activities also are planned.

Visiting astronauts and Center managers will participate in informal tours of the Center from 10 a.m.-2:30 p.m.

A "Lunch-n-Learn" session will be held at noon in Morris Auditorium featuring guest speaker



Fred Gregory

Dennis Fitch's true-life story of piloting United Flight 232, "The Unflyable Airplane" into Sioux City, Iowa.

Between 10 a.m. and 2 p.m., each Center employee will participate in at least one activity involving flight, industrial and personal safety when not participating in other Safety Day activities, according to Marshall's Safety Day Planning Committee. Then each organization will conduct an "Organizational Safety Focus Discussion" from 2:30-3:30 p.m. to discuss the results from the afternoon safety activities.

Employees will be challenged to consider how their job duties affect the safety of flight hardware, how their work environment could be safer, and how to improve personal safety.

Pilot To Share Crash Experience



On July 19, 1989, Capt. Dennis Fitch was aboard United Flight 232 when it suffered a complete loss of flight controls at 37,000 feet. That event culminated in a crash landing a Sioux City, Iowa. Fitch's presentation Sept. 23 at noon in Morris Auditorium will focus on the event and of how he began the flight as a passenger and ultimately became a member of the cockpit crew.

Health & Safety Fair 10 a.m.-2 p.m. in Bldg. 4200, Room G-13

Industrial Safety Office
Redstone Fire Department
Coast Guard Auxiliary
Federal Game Warden/Redstone Arsenal
Crimestoppers
Huntsville Police Department
Atlas Shoe Company
Space Flight Awareness Booth
Huntsville Hospital
American Red Cross
Kappler U.S.A.
Koorsen Fire Protection Services
Grainger Inc.
Mar-Mac Clothing
Perfect Fit Glove Company
North Safety Products
Wells Lamont Glove Company
Brady
Dallos Safety
3M
Mine Safety Appliances
Mother's Against Drunk Driving (MADD)
NASA Safety Reporting System (NSRS)
Celco Safety Inc.
National Safety Council, Decatur Office
Sexton Welding & Safety Shoe Company
VWR Scientific Products
Mid South Testing
Superior Safety Supply
Technical Micronics Control Inc.
Huntsville/Madison County Rescue Squad

Marshall Center contractor exhibitors include:

AJT
Boeing
Lockheed Martin Engineering & Science
R.W. Beck, Inc.
Steinhoff and Sadler Inc.
Sverdrup Team
Teledyne Brown Engineering
HEMSI - blood pressure checks

Bus Schedule for Safety Fair Sept. 23

Bus 1 - 4600 Area

Bldg. 4610 - North main entrance
Bldg. 4663 - East main entrance
Bldg. 4666 - East entrance (the loop)

Bus 2 - 4700 Area

Bldg. 4705 - South main entrance
Bldg. 4708 - North main entrance
Bldg. 4755 - East main entrance

Bus 3 - 4400 Area including Bldg. 4250

Bldg. 4250 - East main entrance
Bldg. 4471 - South entrance
Bldg. 4481 - West main entrance

Bus shuttle service is scheduled to begin at 9:45 a.m. and run at 30-minute intervals. A final bus is scheduled for 2:30 p.m. at the main entrance of Bldg. 4200. An orange cone with the 40th anniversary balloons will identify bus pick-up locations.



NASA photo by Adeline Byford

Amanda Goodson, Marshall's Safety & Mission Assurance director, center, presents NASA 40th Anniversary and ISO 9000 coffee mugs to Marshall Deputy Director Carolyn Griner and Associate, Technical, Director Bob Schwinghamer.



NASA photo by Dennis Keim

Center Deputy Director Carolyn Griner, left, and NASA Administrator Dan Goldin, right, meet with Art Stephenson, the new Marshall Center director, following the announcement Friday of Stephenson's appointment as Center director.

Goldin

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As part of his address, Goldin outlined NASA's current vision. But he said his purpose was not necessarily to describe where NASA is today but where NASA and the entire field of engineering are headed.

Referring to NASA's strategic interests in aeronautics and space transportation, Goldin outlined the need for revolutionary technological advances to provide air and space travel for anyone, anytime, anywhere in the world more affordably, and with less impact on the environment.

Marshall's role in access to space is absolutely vital to NASA and the nation, Goldin said. "NASA has three tests," the administrator said. "Fly the Shuttle safely, get the Space Station built and cause a revolution to occur in space launch and space transportation." Referring to the latter, Goldin said, "I have confidence in the team here (at Marshall) and I've openly stated those goals (regarding access to space) to the president of the United States, the vice president, the Congress and the American people."

Goldin also focused on Marshall's role in keeping the Shuttle flying safely and he outlined NASA's strategic investments in Earth science in areas like hydrology and hurricane tracking. "You are working on some very, very important problems," he told the audience.

Referring to space science, Goldin said the Advanced X-ray Astrophysics Facility (AXAF) scheduled for launch in January would "be the pride of the world." But he predicted that NASA

would replace observatories like AXAF and the Hubble Space Telescope with observatories "that are a tenth of the weight, a tenth of the cost and five to ten times the size."

Addressing human exploration of space, Goldin referred to the International Space Station. "On the Space Station we are going to do a lot of outstanding research, microgravity research... and you folks here are going to change the whole product culture" in America. "I just saw an article on CNN where they showed some of the work you are doing on MIR, Shuttle/MIR, that has developed a whole new set of products that allow fruits and vegetables to set in storage for a week instead of a day."

Such advances are part of the NASA vision, Goldin said. He also urged engineers at the Marshall Center and elsewhere in NASA to begin thinking now about the future characteristics of the systems that will make that vision a reality.

Computer systems that rely on traditional numerical systems may not work. Instead, Goldin predicted a demand for "soft computing," a movement toward processes that more closely resemble human intelligence. To measure performance, engineers will need to establish a concept of vehicle IQ as part of the engineering design process.

Goldin said the NASA vision and the characteristics it will require will change the culture of engineering design. He recalled the systems of the 1960s that included electronic drafting boards that provided wireframe modeling. In the 1970s, engineers turned to solid models to represent geometry and three-dimensional surface contours. About 20 years ago the emergence of CAD/CAM significantly reduced design cycle, process time and engineering change orders.

Today, NASA has very efficient and qualified product teams, he said. But the agency still has a disconnect from discipline to discipline, Goldin added.

The agency does not have a common database, but rather many distributed unconnected databases across engineering disciplines and manufacturing, Goldin said.

As an example of one way to break the log-jam, Goldin referred to the Product Design Center at the Jet Propulsion Laboratory. By bringing disciplines together, the design center has reduced analysis of mission design concepts from half a year to two weeks.

Unfortunately, Goldin explained, NASA still can't do total end-to-end product life cycle simulation. For example, he said, there is too much uncertainty throughout the life cycle of a product and there are a lot of people involved. In addition, NASA needs to capture design knowledge earlier in the design process. But, he said, the biggest challenge involves dealing with an unprecedented quantity of data and converting it into usable knowledge.

Closing the gap between design knowledge and cost commit-

As part of Goldin's visit to Marshall Friday, he participated in a nationwide virtual tour of advanced propulsion using Marshall's Collaborative Engineering Center. More details on this portion of Goldin's visit will be published next week.

See Goldin on page 7

Upcoming Events

AIAA's Great Paper Airplane Contest Friday

Imaginations will soar during the American Institute of Aeronautics and Astronautics's (AIAA) fourth annual Great Paper Airplane Contest to be held from 3:30-5:30 p.m. Friday, Sept. 18, in Bldg. 4752.

During the event, adults and children will design and fly paper airplanes. Amateur designers will compete for prizes in the areas of acrobatics, distance, time of flight, accuracy and artistic appeal.

The event is free and open to the public. For more information, call Paul Luz at 544-0512.

Volunteers Sought for Marshall Community Service Day Sept. 19

Volunteers are needed to participate in Marshall's fourth annual Community Service Day being held 9 a.m.-1 p.m., Saturday, Sept. 19.

Marshall employees, on-site contractors and their family members may volunteer to help with projects at Care Assurance System for the Aging and Homebound (CASA), Christmas Charities, Habitat for Humanity, Salvation Army or Hospitality House. For more information, contact Karen Dugard at 544-0037.

Tour Guide Volunteers Needed for Center's 1998 CFC Bus Tours

Tour guide volunteers are needed to support the Marshall Center's 1998 Combined Federal Campaign (CFC) bus tours to recipient agencies scheduled for Sept. 18, 22 and 24.

Tour guides — an integral part of the CFC at Marshall — add to the success of the bus tours and campaign. The tour guide job is simple and informal. For more information contact Karen Oliver at 544-6908.



NASA photo by Adelin Byford

Marshall Center to Celebrate National Hispanic Month Sept. 15-Oct. 15

Marshall Center Deputy Director Carolyn Griner, seated center, prepares to sign a document proclaiming Hispanic Heritage Month, Sept. 15 through Oct. 15, with members of the Hispanic Employment Program Committee. Seated from left is Marshall's Hispanic Program Manager Alicia Beam, Griner and Marc Subido, Hispanic program manager for the Aviation and Missile Command (AMCOM). Standing from left are Wally Gonzalez, Robert Salinas, J.R. Contreras, Chris Silva, Felix Marerro and Luis Trevino. Marshall has joined forces with AMCOM to celebrate Hispanic Heritage Month with a luncheon scheduled for 11 a.m. to 1 p.m. Sept. 30 in the Redstone Officers Club Grand Ballroom. Featured speaker for the event will be Dr. Blanca Whitt who will speak on the topic "Women in Leadership." There also will be live Latin and jazz music by the group "Soft Note." Tickets for the luncheon are available for \$7.50 each and may be purchased from Alicia Beam, 544-2849 or Luis Trevino, 544-1233.

Goldin

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ments will mean relying on the system that Goldin called Intelligent Synthesis Environments (ISE). The major components of that system involve human computer interaction in a distributed collaborative environment. It also involves the development of new simulation tools and how these tools can be incorporated into a seamless life cycle system capability.

Human interaction deals with the dynamics and interfaces between the human being and the computer, he said. The Vision Dome at the University of Michigan, Goldin said, allows engineers to view objects in full-scale 3-D without devices like glasses, head trackers and wands. Current interfacing environments are "WIMPS," meaning windows, icons, menus and pointing systems.

The administrator also predicted a move toward non-silicon, or non-electric computers that might include both optical and biological computing. ISE might also rely on increased networking ability that links diverse teams together in a simula-

tion-based conceptual design environment. This would enable engineers to work together as a collaborative team in the engineering design process. Another part of ISE involves the development of rapid synthesis and simulation tools involving such non-traditional methods as neural networks which have the capacity to learn or adapt analogous to the human brain. Still another element of ISE involves how to achieve this type of future engineering capability.

Goldin said NASA wants to focus on the establishment of test beds in critical areas such as high-speed civil transport, reusable launch vehicles, next-generation space telescopes and human exploration to Mars.

Beyond the technical barriers associated with ISE are the cultural barriers. "It's going to be letting go of the things that are not in the future of where we are going," the administrator said. "It's a commitment to the vision and a belief that NASA, and NASA Marshall, are about making America the best place in the world to live for the next century."

Employee Ads

Miscellaneous

- ★ Panasonic VCR with remote, \$50. 721-9005
- ★ Black-sequined formal dress, size 11/12, \$75; Liz Claiborne formal dress, burgundy, \$100. 858-0272
- ★ Moser amber highball glasses, 6 ea., \$80 ea.; Lamb plates, 4 ea., \$12 ea. 882-6832
- ★ Rear glass for 2-door 1966 Corvair. 881-6830
- ★ Go-cart, 5 HP, 2-seater, roll cage, safety features, \$500. 837-2461
- ★ Conn student trombone, model 18H, \$500. 830-4846
- ★ Talledega 500, Oct. 11, 2 tickets, \$45 each. 232-0645 or 461-2718
- ★ Set of wheels for 1995 Ford F150 truck, factory-painted gray, lug nuts, center caps, \$300. 883-9741 after 5 p.m.
- ★ Alabama vs. East Carolina University football ticket for Oct. 17, \$26. 350-3383

Vehicles

- ★ 1985 Honda Accord LX, A/T, extras, 136K miles, \$2,650. 881-5642 after 3 p.m.
- ★ 1984 Dodge van, B150, 209K miles, \$1,250. 518-9023
- ★ 1993 Ford Escort, LX, 5-sp., 5-dr. hatchback, A/C, 78K miles, \$4,700 obo. 461-8706
- ★ 1987 Corvette, red/red, glass top, automatic, all power, 17" Z tires, alloy wheels, Bose, \$12,490. 882-6446
- ★ 1985 Ford Crown Victoria, A/C, AM/FM cassette, \$500. 498-2116
- ★ 1998 GMC Yukon, white w/gray leather, reac A/C, CD, tow package, 12K miles, \$28,500 obo. 828-7998
- ★ 1992 Motor home, 32' Allegro Bay, 48K miles, \$35,000 negotiable. 881-0278
- ★ 1993 Pontiac Grand AM SE, A/C, R/C, red, 94K miles, \$5,400. 864-0858

Wanted

- ★ Mac SW version 7.6 on floppies; rigid plastic or A1 tube w/6.5-7" inside diameter, 5-6' long, for telescope. 851-1923

Center Announcements

- ✦ **EDTeC** — The Employee and Organizational Development Office (EDTeC) is sponsoring a seminar via satellite on "Balancing a Successful Career with a Fulfilling Life." The seminar is from 12:30-2 p.m. Tuesday, Sept. 29, in Bldg. 4200, room G-13. It will be broadcast on the Marshall Continual Learning Channel 14. Registration is necessary to receive course credit and a participant notebook. Enrollment is limited and the registration deadline is 4:30 p.m. Sept. 17. Employees may register via AdminSTAR. For more information call the EDTeC at 544-3343.
- ✦ **Shuttle Buddies** — The Shuttle Buddies will meet for breakfast at 9:15 a.m. Sept. 28 at Shoney's on University Drive West. **Contact:** Deemer Self, 881-7757
- ✦ **Blue Cross/Blue Shield** — A Blue Cross/Blue Shield federal representative will be at Marshall from 9-11 a.m. Tuesday, Sept. 22, in Bldg. 4200, room 324. Employees with questions or claim concerns are encouraged to attend.
- ✦ **MOO** — The Management Operations Office (MOO) retirees will meet for breakfast/lunch at 10 a.m. Sept. 24 (4th Thursday each month) at the Cracker Barrel in Madison. All present or former MOO employees and retirees are invited. **Contact:** 539-0042
- ✦ **Toastmasters** — The NASA Lunar Nooners Toastmasters Club will meet at 11:30 a.m. Tuesday, Sept. 22, in the Bldg. 4610 cafeteria conference room. All Marshall employees, contractors and friends are invited. **Contact:** Lee Johns, 544-5142
- ✦ **MESA** — The Marshall Engineers & Scientists Association (MESA), will meet at 11:30 a.m. Sept. 17 in Bldg. 4471, room C-105.
- ✦ **Big Spring Jam** — Three-day discount tickets to Huntsville's Big Spring Jam — Sept. 25-27 — are available to Marshall Center employees and contractors at the NASA Exchange, Bldg. 4752, for \$18. A Big Spring Jam schedule may be found at the following Web site:

www.bigspringjam.org

- ✦ **Full Cost Training** — Full Cost training for Marshall Center employees continues from 8 a.m.-4:30 p.m. Sept. 23 at the Sparkman Center in Bldg. 5304. **Contact:** LaVerta McGlathery, 544-7560
- ✦ **TMA** — The Marshall Association, formerly known as the Marshall Management Association, is sponsoring "Spouse/Date Night" Sept. 29 at the Rustic Lodge on Redstone Arsenal. Guest speaker will be planetary scientist, writer and artist Dr. William Hartmann. Dress is casual with a social beginning at 6:30 p.m. and dinner at 7 p.m. Ticket cost is \$10 per person. **Contact:** Jerry Williams at 544-0295.
- ✦ **Medical Center** — The Medical Center at Marshall, Bldg. 4249, is open from 7 a.m.-3:30 p.m. Monday-Friday. Available Monday-Friday are: routine blood pressure monitoring, noon-3 p.m.; and allergy injection service, 8:30-10:30 a.m. and noon-2:45 p.m. **Contact:** Medical Center, 544-2390
- ✦ **40th Anniversary T-Shirts** — A second chance to order 40th Anniversary Commemorative T-shirts is being offered by the NASA Exchange. T-shirts may be ordered in adult sizes S-XL for \$10; XXL for \$11; and XXXL for \$12 and are available in 100 percent cotton or 50/50 blend. The deadline for placing orders is Sept. 28. **Contact:** NASA Exchange, 4-7564

Job Opportunities

- CPP 98-109-DC, Management Analyst, GS-343-11**, Microgravity Research Program Office, Outreach & Education Office. Closes Sept. 16.
- CPP 98-131-JB, IFMP Program Assistant, GS-303-7**, Customer and Employee Relations Directorate, IFMP Training Program Office. Closes Sept. 21.
- CPP 98-137-KP, AST, Technical Resources Management, GS-801-11**, Microgravity Research Program Office, Program Planning and Control Office. Closes Sept. 24

MARSHALL STAR

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